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U.S. Fuel Administration

Lessons in coal saving

Washington

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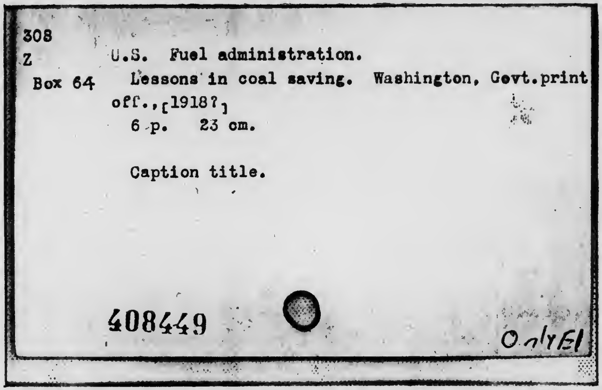

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LESSONS IN COAL SAVING

UNITED STATES FUEL ADMINISTRATION

LESSON I.

SAVING COAL IN HOUSEHOLD HEATERS.

The Government asks each householder to give personal attention to his own heater this winter. The hired furnace man may be careless. Lifting coal and moving ashes may be too heavy work for many women, but regulating drafts is not difficult. On the proper use of drafts and dampers depends heating efficiency and fuel saving.

CLEANLINESS AND REPAIR.

Absolute cleanliness is the first requisite for a hot and economical fire in hot-air furnaces, steam and hot-water plants, and kitchen ranges. A sooty heater may waste one-fourth of the coal. The heater should be in thorough repair.

1. The chimney must be cleaned; soot interferes with draft.
2. Clean out the smoke pipe; if it has any holes a new pipe should be supplied. Air leaks seriously interfere with the draft; make sure the check-draft damper and the turn damper are in working order. The smoke pipe should fit the chimney tightly and be cemented in.
3. Clean top section of heater by inserting a wire brush through clean-out door. Scrape off all soot or ash. A coating of this nonconductor one-eighth of an inch thick will reduce effective heating 25 per cent. Clean lower section through the coaling door; see that grates are in proper working order.
4. Go over heater carefully to find small cracks or leaks between sections. Stop these with cement; they waste heat and coal.
5. Drain the water from steam and hot-water heaters and furnish a clean supply.

6. As to the cooking range, clean off the top of the oven; take out the small clean-out door, and clean thoroughly under the oven. Give smoke pipe and chimney same attention as given to cellar plant.

ECONOMICAL FIRING—GENERAL RULES.

1. There must be a *check-draft damper in the smoke pipe*, besides the turn damper. This check-draft damper controls the rate at which the fire burns just as a throttle controls an engine's speed. Open it to check fire; close it to increase draft. Experiment with it—make it do its work. Don't open the coaling door. If you can not check the fire without opening the coaling door, your heater needs proper dampers.

2. The turn damper should fit smoke pipe loosely, or have a small opening in it to allow the gas to pass off. In the average heater it should be kept nearly closed most of the time, depending upon chimney draft. If allowed to remain open most of the heat goes up the chimney.

3. Just enough draft—and that from below—is one of the best general rules. This furnishes oxygen, necessary for consumption of gases, and gives time for them to burn before being drawn up the chimney; it also prevents the escape of coal gas into the cellar.

4. Grates should be cared for diligently. A short, quick stroke or two of shaker is usually sufficient. Clean ash pit daily, to prevent damage to grates. In severe weather shake only until a glow appears in ash pit. Leave grates in flat position when through shaking. Avoid poking fire bed. It causes draft holes and clinkers. Never shake a low fire until you put on a little fresh coal and give it time to ignite.

5. All heat pipes in cellar should be covered with asbestos. Weather strips, storm windows, and storm doors save heat.

6. Turn off heat in unused rooms. Bedrooms should be kept much cooler than living rooms. Don't try to heat all rooms all the time. If you have a hot-water system, make heavy radiator slip covers and put over radiators not in use to prevent freezing. Keep valve open.

7. Place pans or open-top jars of water on radiators or in front of registers to help keep air moist.

IMPORTANT ADVICE TO SOFT-COAL USERS.

In burning soft coal the most important thing to remember is—never entirely cover the fire bed with fresh coal, because the gases will be given off faster than they can be burned, and smoke and soot will result. Allow some red coals to remain exposed so that the gases from fresh coal will pass over the glowing coals and be burned. Open the coaling door slightly after adding coal to supply the air necessary to burn gases. Keep the slide in coaling door open at all times.

Lesson II.

WARM-AIR HEATERS—SPECIFIC RULES.

1. Regulate window of cold-air box to avoid a great current of outside air on very cold days. Provide necessary additional air from cellar or lower floor rooms.

2. Keep water container in air jacket filled. Set jars of water near registers.

3. Hot-air pipes should pitch upward from heater, should be of sufficient diameter, and should be wrapped with asbestos. A separate pipe for each room with a turn-damper near furnace is a good rule. Label each pipe so that certain rooms can be shut off at the furnace when desired.

4. Have firebox gastight. All cracks must be cemented or a new section put in; otherwise coal gas will be carried to rooms.

STEAM HEATERS—SPECIFIC RULES.

1. To prevent rust inside boiler during summer, fill with water up to safety valve. In the fall draw down water to height of middle of glass gauge. A higher stage will lower efficiency by reducing size of steam chamber; water much lower may damage the boiler. If no water shows in the glass, smother the fire with damp ashes; let the boiler cool before adding water. Look at glass water gauge whenever you visit cellar. Turn try cocks above and below gauge occasionally to make sure it is not clogged.

2. Make sure air valve of each radiator works so that the air can escape and allow steam to fill radiators. If it does not work, replace it with a first-class new one. Poor air valves cause most of the trouble in a steam-heating system.

HOT-WATER PLANTS—SPECIFIC RULES.

1. All water should be emptied from plant every spring. After most of water has been drawn off, open air valves on all radiators; otherwise a vacuum will be created and some water will remain in system. Never allow system to stand empty; refill with fresh water immediately, except in winter weather when house is not occupied.

2. Make certain that radiators are filled with water. A radiator partly filled with air is only partly efficient. Open the small air valve of each radiator and allow it to remain open until water flows. If water does not appear it is an indication that there is not enough in the system and more must be added. Open valves frequently, especially those of top floor, to make sure the radiators are filled with water.

3. The expansion tank is located above the top of the highest radiator, usually in a closet. It takes care of the expansion and contraction of water and should therefore be only partly filled. An overflow pipe leads from the top of this tank to the outside of the house. If the system is so full that there is water in this overflow pipe, there is danger of it freezing, which seals the system and may cause damage to the heater when the water is heated to a higher temperature, because there is no room for expansion.

(*Study General Rules. They apply to all systems.*)

Lesson III.

SAVING FUEL IN THE KITCHEN.

General rules for firing household heaters, given in Lesson 1, apply also to kitchen coal range or stove. Study them again.

SPECIFIC RULES FOR OPERATING COAL RANGE.

1. Keep fire bed even with top of oven, rounding off top but not leaving coal against lids or running over oven.
2. When fire is low, put on a little fresh coal and give it time to ignite before shaking. Don't poke the fire.
3. Clean entire stove inside frequently and thoroughly, particularly under oven and on top of oven.
4. Shake the grate with short, quick strokes. If range has flat grate use poker to clean off top. Always allow fire full draft for 5 or 10 minutes before cleaning. Take ashes from the pit daily to prevent damage to grates.
5. For baking and roasting, clean out ashes, fill with coal to top of oven, and open lower draft damper. As soon as baking is finished close all front drafts, open the check-draft damper in the smoke pipe. If fire still burns too brightly, and if lid must be removed to check it, take off one farthest from fire box; never remove lid directly over fire.
6. In banking fire for the night run poker around side of fire to clean clinkers off the bricks and water back. See that fire is packed down solidly, rounding off top but not having coal against lids or running over oven. Adjust dampers as directed when through baking.
7. It will keep kitchen warm to leave oven door open.

SUGGESTIONS FOR SAVING GAS.

When water reaches boiling point it is a waste to keep a gas-range burner wide open. Very little heat is needed to keep water boiling once it has started. Violently boiling water is no hotter than water just boiling. Use simmering burner when possible.

Some modern gas ranges are fitted with small pilot lights, which save gas if burner is turned off between times of preparing foods or changing pots, or when leaving kitchen; the pilot will relight burner instantly.

Learn to read your gas meter. The gas company will teach you how. It is not difficult. Keep a record of meter readings and see if you can not save more gas each week. This will mean a saving in gas bills as well as coal.

SAVING KEROSENE AND GASOLINE.

Economy should be practiced by those who cook with either one or both of these fuels.

Keep the stove scrupulously clean, kerosene wicks well trimmed.

Do not use kerosene, gasoline, or crude oil for cleaning. Substitute hot water.

COOKING METHODS THAT SAVE FUEL.

One of the greatest time, labor, and heat savers of the age is the fireless cooker. You can not afford to be without one. The fireless cooker can save fuel in winter and will make your kitchen cooler in summer.

The old-fashioned double-decked vessel for steam cooking is economical as it cooks different foods at one time over one burner.

Plan to have special baking days when ovens are full.

Certain furnaces have just inside the coaling door, a ledge on which can be set vessels containing food which requires slow cooking. Earthenware vessels or heavy iron pots are best for purpose. Glazed ware is apt to crack. Use covers on these pots. More water should be used than for ordinary casserole cooking as evaporation is rapid.

Lesson IV.

SAVING COAL BY SAVING LIGHT.

Turn out all lights when leaving an unoccupied room.

Use incandescent gas burners instead of ordinary flat-flame burners, You can thus obtain twice the amount of light at half the cost.

Have a chain pull bypass on all gas fixtures in order that gas may be relighted instantly without bothering to hunt up a match.

Avoid carbon-filament bulbs in electric lights. The tungsten bulbs give much brighter light and burn less electricity.

Remove all bulbs where they have been used so long that they give poor light. Keep the bulbs clean. Take out the unneeded lights.

For all work requiring close light have a reading table on which is an efficient lamp, whether it be gas, electricity or kerosene.

Lamp shades should be of material that does not absorb light. They should be translucent, not opaque.

Window screens should be taken down when no longer needed. They consume much daylight; dirty screens about one-half.

Wall paper if renewed should be of light tone. Dark tones absorb light.

Lesson V.

MISCELLANEOUS METHODS OF FUEL SAVING.

Never let the temperature of the house go above 68° unless you have old folk, very little children, or invalids in the home.

Wood.—If you live where wood can be hauled by team or motor you can take advantage of this agreeable kind of fuel to postpone the time of lighting your central heating plant with coal or even use wood throughout the winter.

Clothing.—Women should wear warmer clothing in the house this winter.

Hot water.—The heater which requires lighting for a short period before hot water is required is economical of gas. In using an automatic instantaneous heater never turn on the hot-water faucet even for a few seconds, unless you actually need hot water, because the instant you turn on water, gas is consumed. Place self-closing faucets on all hot-water taps except bathtub.

Sift the ashes from range and heater. Use the partly consumed coal that is reclaimed to bank the heater overnight.

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